

Based on Form PTO-1449 . (3/90)			ATTY. DOCKET NO. 5701-00298		SERIAL NO. Page 1 10/604,716					
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MA	АВ	5,264,859	11/23/1993	Lee et al.	343	754	·		
MA	AC	5,313,213	5/17/1994	Neumann et al.	342	165			
MA	AD	5,446,470	8/29/1995	Avingnon et al.	343	713			
MA	AE	5,963,172	10/5/1999	Pfizenmaier et al.	343	721			
MA	AF	6,606,077	8/12/2003	Ebling et al.	343	911L			
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MA AJ MA AK AL	4 000 00-	7/4/1989	Archer et al.	343	754	:
MA AK AL	4,983,237	1/8/1991	Alfing	156	83	
- AL	5,099,253	3/24/1992	Archer	343	754	
	5,204,686	4/20/1993	Petrelis et al.	342	374 .	
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MA AR	G. Bekefi, and G. W. Farn vol. 34, pp. 790–803, 1950	nell, "A homogend 6.	ous dielectric sphere as a mi-	crowave lens,"	Canadian Journ	al of Physics,
	G. Toraldo di Francia, "Sp 1961.	pherical lenses for	infrared and microwaves,"	Journal of App	lied Physics, vol	. 32, pp. 2051,
NA AT	Tomos L. Ap Rhys, "The of 197–506, July 1970.	design of radially	symmetric lenses," IEEE Tr	ans. on Antenn	as and Propagati	on, AP-18, pp.
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MA	ВА	5,274,389	12/28/1993	Archer et al.	343	754 -	1	
MA	ВВ	5,347,287	9/13/1994	Speciale	342	375		
MA	ВС	5,451,969	9/19/1995	Toth et al.	343	781 CA		
MA	BD	5,548,294	8/20/1996	Sturza	342	372		
MA	BE	5,576,721	11/19/1996	Hwang et al.	343	753		
MA	BF	5,712,643	1/27/1998	Skladany	343	700 MS	·	
MA	BG	5,745,082	4/28/1998	Alder	343	753		
MA	вн	5,821,908	10/13/1998	Sreenivas	343	911 R		
MA	ВІ	5,828,344	10/27/1998	Alder et al.	343	755		
MA	·BJ	5,874,915	2/23/1999	Lee et al.	342	375	·	
MA	вк	5,892,487	4/6/1999	Fujimoto et al.	343	840 .	;	
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MA	BR	L. C. Gunderson, "An ele Propagation, AP-20, pp.		lysis of a cylindrical homoge	-nous lens," IE	EE Trans. on Ar	itennas and	
MN	BS	S. Lee, M. S. Sheshadri, solution," IEEE Trans. or	V. Jamnejad, and n Microwave Theo	R. Mittra, "Refraction at a cu ory and Techniques, MTT-30	rved dielectric), no. 1, pp. 12-	interface: geom -19, Jan 1982.	etrical optics	
MA	ВТ	M. N. Afsar, "Dielectric pp. 439-442,1985.	measurements of o	common polymers at millime	ter wavelength	range," in IEEE	MTT-S Digest,	
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MA	CA	5,894,288	4/13/1999	Lee et al.	343	770		
MA	СВ	5,913,549	6/22/1999	Skladany	29	600		
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MA	CD	6,031,501	2/29/2000	Rausch et al.	343	754		
MA	CE	6,046,703	4/4/2000	Wang et al.	343	795		
MA	CF	6,061,035	5/9/2000	Kinasewitz et al	343	853	-	
MA	CG	6,424,319	7/23/2002	Ebling et al.	343	911		
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MA	CR	J. Ashkenazy, E. Levine, and no. 3, pp. 111-112, Jan 19		Radiometric measurement of a	ntenna efficie	ncy," in Electron	ı. Lett., vol. 21,	
MA	cs			. Kim, E. L. Kollberg, and J. ns," IEEE Trans. on Microwa				
MA	СТ	J. Sanford, "A luneberg-le	ens update," IEEF	E Antennas and Propagation N	1agazine, vol.	37, no. 1, pp. 76	5–79, 1995.	
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MA	DR	S. Sugawara, Y. Maita, K. pattern," in 1997 IEEE MI	Adachi, K. Mori	, and K. Mizuno, "A mm-wave ave Symp. Dig., Anaheim, CA	tapered slot, June 1997,	antenna with im pp. 959-962.	proved radiation		
MA	DS	K. K. Chan, S. K. Rao, G. Trans. on Antennas and Pro-	A. Morin, and Mopagation, vol. 4	. Q. Tang, "Triangular ray-tube 5, no. 8, pp. 1277–1285, Aug 1	analysis of 997.	dielectric lens ar	ntennas," IEEE		
MA	DΤ	F. Demmerle, S. Kern, and Antennas and Propagation	W. Wiesbeck, "Society Internati	A bi-conical multibeam antenn onal Symposium, Montreal, Au	a for space d	ivision multiple 1082–1085.	access," in		
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	ER	H. Mosallaei, and Yahy	a Rahmat-Samii "N " IEEE Trans on A	onuniform luneburg and two-s Antennas and Propagation, vol	nell lens and . 49. no. 1. p	ennas: radiation p. 60–68. Jan 20	cnaracteristics 101.		
MA		and design opamication	, 2000 1141101 011 1						
		I. Gresham, N. Jain, T.	Budka, A. Alexania	n, N. Kinayman, B. Ziegner, S	Brown, and	P. Staecker, "A	compact		
MA	ES	manufactureable 76-77- Techniques, vol. 49, no.		for commercial ACC applicati	ons," leee .	I rans. On Microv	wave Incory and		
				ides; G.M. Rebeiz, "Spheric	al-Lens Ant	ennas for Millir	neter Wave		
MA	ET	Radars", European M	icrowave Week 2	001 Proc., pp. 317-320, vol.	. 3, Septem	ber, 2001.			
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.	FR			act Multibeam Imageing Anter	nna for Auto	omotive Radar	s", 2002 IEEE		
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